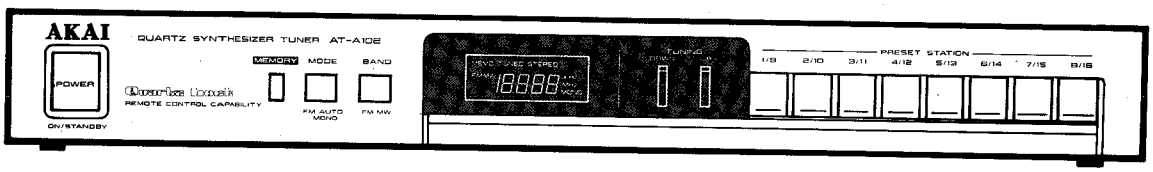
AKAI SERVICE MANUAL



QUARTZ SYNTHESIZER TUNER

MODEL AT-A102/L

SPECIFICATIONS

FM Tuner section

Tuning frequency range	87.5MHz to 108.0MHz
Usable sensitivity	12.7dBf
Quieting sensitivity (S/N = 50dB)	19.2dBf (Mono)/40.2dBf (Stereo)
Capture ratio	2.0dB
Selectivity (400kHz)	60dB
Image rejection	50dB
IF rejection	80dB
Spurious rejection	80dB
AM suppression	50dB
Sub carrier suppression	55dB
S/N (IHF)	70dB (Mono)/60dB (Stereo)
T.H.D.	0.2% (Mono)/0.4% (Stereo)
Stereo separation (1kHz)	40dB
Frequency response	30Hz to 15kHz ±1.0dB

AM tuner section	**MW**	**LW (AT-A102L only)**
Tuning frequency range		
(for US & Canada)	530kHz to 1610kHz	
(for others)	531kHz to 1602kHz	146kHz to 353kHz
Usable sensitivity	300μV/m	800μV/m
Selectivity	30dB	40dB
Image rejection	45dB	45dB
IF rejection	35dB	35dB
S/N	40dB	35dB
T.H.D.	1.0%	2.0%

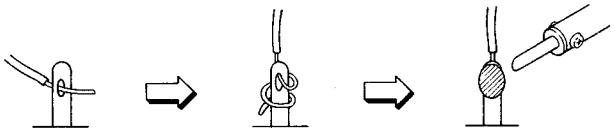
Output level	
FM	700mV (100% Mod.)
AM	250mV (30% Mod.)
Power requirements	AC120V 60Hz for USA & CANADA AC220V 50Hz for Europe except UK AC240V 50Hz for UK & Australia AC 110/120/220/240V 50/60Hz convertible for other countries
Dimensions	440(W) x 60(H) x 230(D) mm (17.3 x 2.4 x 9.1 inches)
Weight	2.0kg (4.4 lbs)

* For improvement purposes, specifications and design are subject to change without notice.

★SAFETY INSTRUCTIONS

PRECAUTIONS DURING SERVICING

1. Parts identified by the ⚠ symbol parts are critical for safety. Replace only with parts number specified.
2. In addition to safety, other parts and assemblies are specified for conformance with such regulations as those applying to spurious radiation.
   These must also be replaced only with specified replacements.
   Examples: RF converters, tuner units, antenna selector switches, RF cables, noise blocking capacitors, noise blocking filters, etc.
3. Use specified internal wiring. Note especially:
   1) Wires covered with PVC tubing
   2) Double insulated wires
   3) High voltage leads
4. Use specified insulating materials for hazardous live parts. Note especially:
   1) Insulation Tape
   2) PVC tubing
   3) Spacers (Insulating Barriers)
   4) Insulation sheets for transistors
   5) Plastic screws for fixing microswitch (especially in turntable)
5. When replacing AC primary side components (transformers, power cords, noise blocking capacitors, etc.), wrap ends of wires securely about the terminals before soldering.



6. Observe that wires do not contact heat producing parts (heatsinks, oxide metal film resistors, fusible resistors, etc.).
7. Check that replaced wires do not contact sharp edged or pointed parts.
8. Also check areas surrounding repaired locatoins.
9. Use care that foreign objects (screws, solder droplets, etc.) do not remain inside the set.

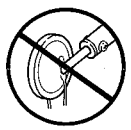
SAFETY CHECK AFTER SERVICING

Confirm the specified insulation resistance between power cord plug prongs and externally exposed parts of the set is greater than 10 M ohms. but for equipment with external antenna terminals (tuner, receiver, etc.) and is intended for [C] or [A], specified insulation resistance should be headphone jacks line-in-out jacks etc. more than 2.2 M ohms (ground terminals, microphone jacks).

PRECAUTION FOR THE LITHIUM BATTERY

The LITHIUM BATTERY employed for memory Back up has a explosive probability when the BATTERY itself is excessive heated.

IN CASE OF REPLACING: RESOLDER and SOLDER AS RECOMMENDED WAY.



〔DANGER〕

〔RECOMMENDED WAY〕

★INFORMATION

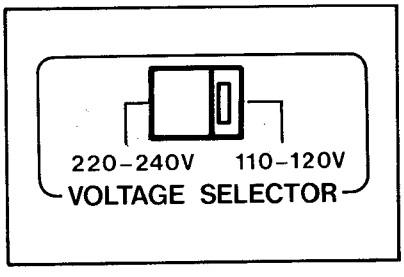
SYMBOLS FOR PRIMARY DESTINATION

Alphabet indicates the destination of the units as listed below.

Symbols	Principal Destinations
[A]	USA
[B]	UK
[C]	Canada
[E]	Europe (except UK)
[J]	Japan
[S]	Australia
[V]	W. Germany only
[U]	Universal Area
[Y*]	Custom version

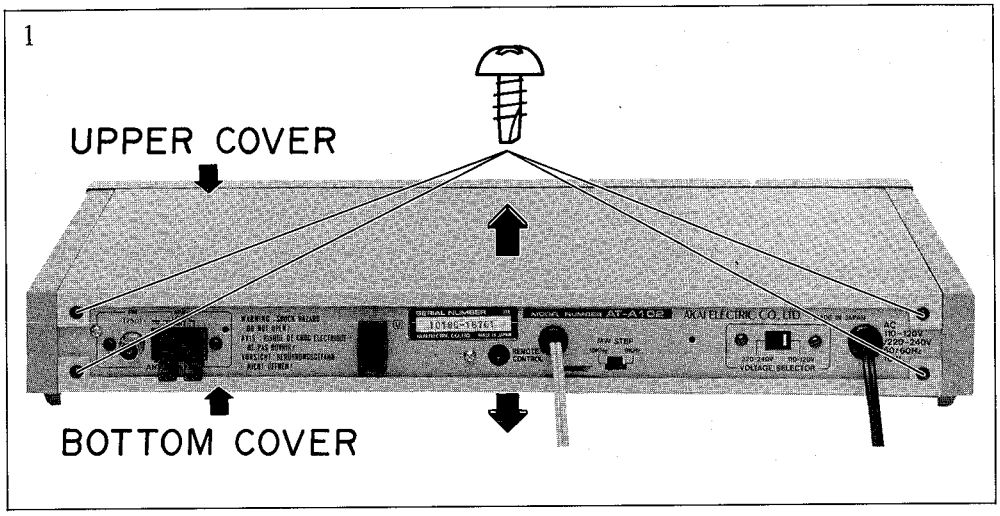
VOLTAGE CONVERSION ([U] Model only)

Befor connecting the power cord. SET the VOLTAGE SELECTOR located on the rear panel with a screwdriver so that the correct voltage is indicated.



I. DISMANTLING OF UNIT

In case of trouble, etc. necessitating dismantling, please dismantle in the order shown in the photographs. Reassemble in reverse order.



II. CONTROLS

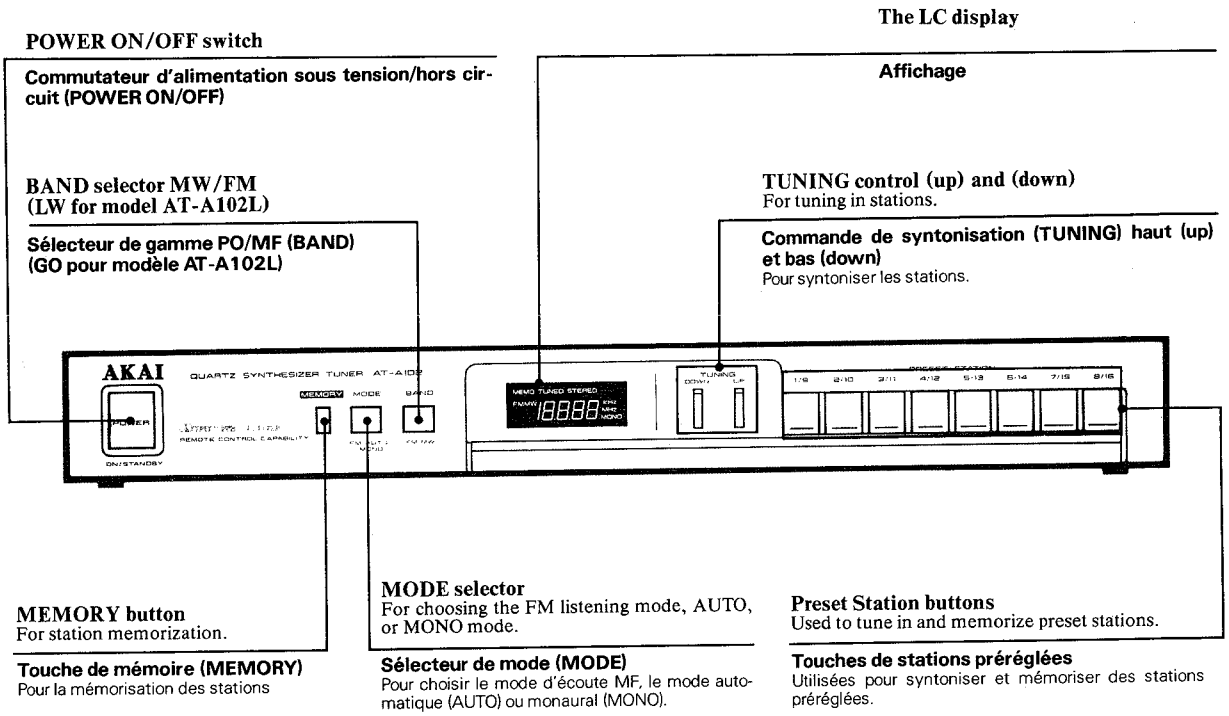

POWER ON/OFF switch
Commutateur d'alimentation sous tension/hors circuit (POWER ON/OFF)
The LC display
Affichage
BAND selector MW/FM
(LW for model AT-A102L)
Sélecteur de gamme PO/MF (BAND)
(GO pour modèle AT-A102L)
TUNING control (up) and (down)
For tuning in stations.
Commande de syntonisation (TUNING) haut (up) et bas (down)
Pour syntoniser les stations.
AKAI
QUARTZ SYNTHESIZER TUNER AT-A102
MEMORY button
For station memorization.
Touche de mémoire (MEMORY)
Pour la mémorisation des stations
MODE selector
For choosing the FM listening mode, AUTO, or MONO mode.
Sélecteur de mode (MODE)
Pour choisir le mode d'écoute MF, le mode automatique (AUTO) ou monaural (MONO).
Preset Station buttons
Used to tune in and memorize preset stations.
Touches de stations préréglées
Utilisées pour syntoniser et mémoriser des stations préréglées.

Fig. 2-1 Front View

MW STEP SWITCH (U model only)

Use this selector to set the frequency scanning steps for the MW band. (10 kHz for North and South America, 9 kHz for other areas)

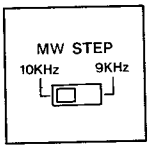


Fig. 2-2

ON THE OPTIONAL REMOTE CONTROL

When using the AT-A102 with the Akai Surround Processor AS-P302 or AS-P202, you can select preset channels with the Remote Control unit of the processor. To use this option, simply connect the REMOTE CONTROL jack located on the rear panel of the AT-A102, to the TUNER CONTROL jack on the rear panel of the AS-P302 or 202. Consult the operation manual of these components for further details.

III. PRINCIPAL PARTS LOCATION

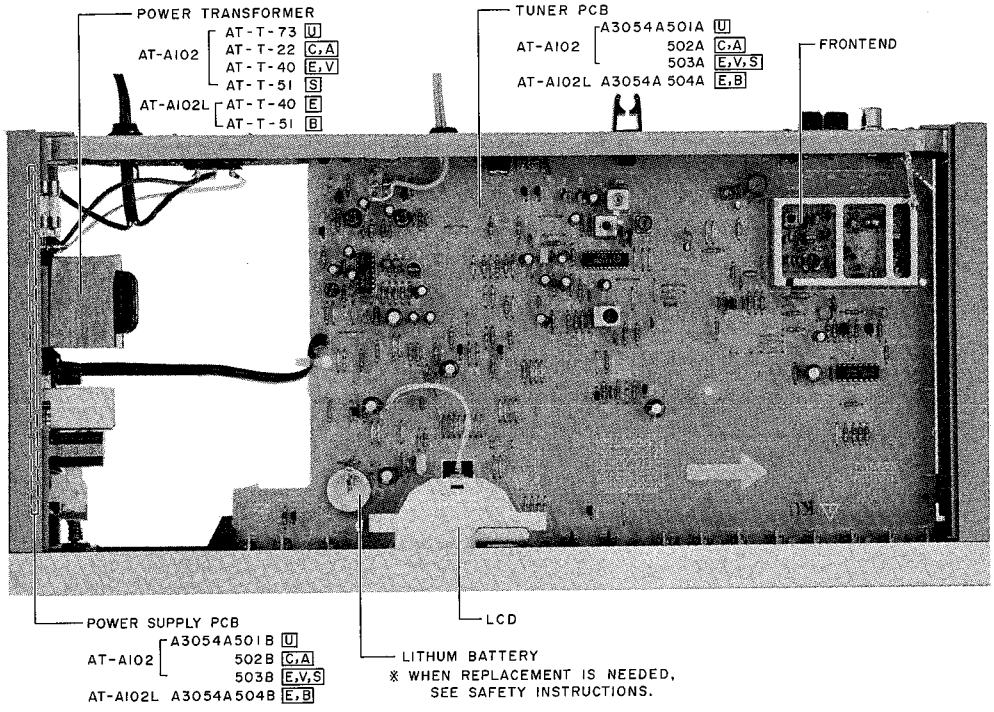


Fig. 3-1

IV. ADJUSTMENT

4-1. INSTRUMENT CONNECTIONS

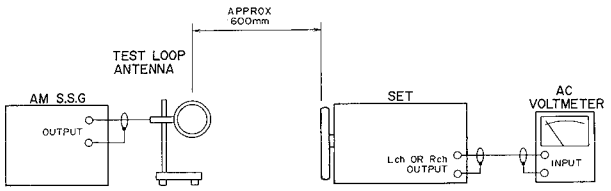


Fig. 4-1 Instrument Connections for AM (MW,LW) Section Adjustment

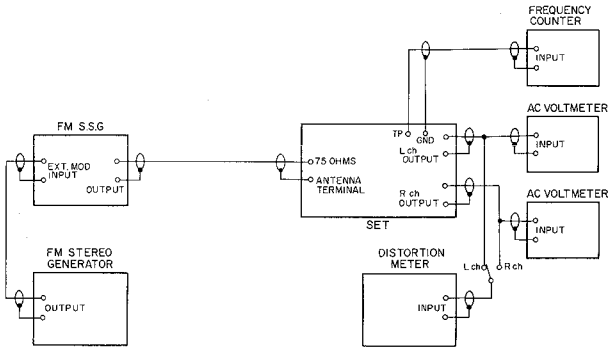


Fig. 4-2 Instrument Connection for FM Section Adjustment

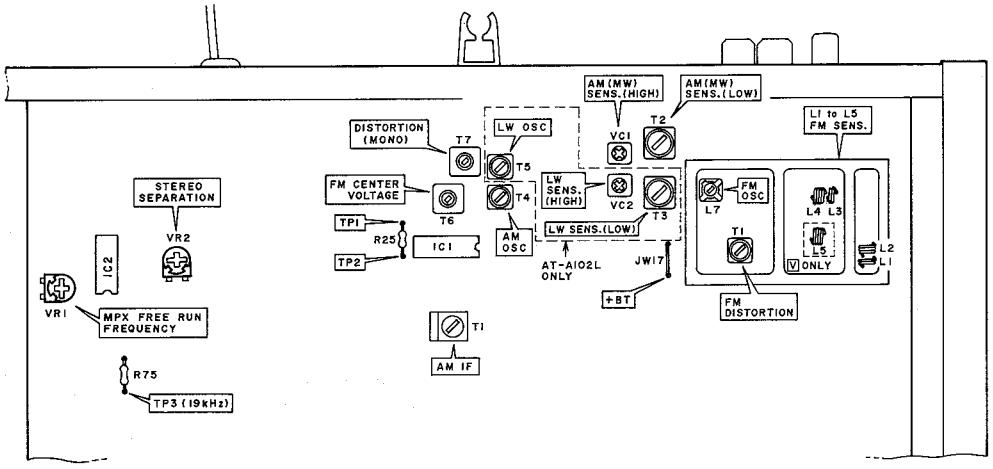


Fig. 4-3 Adjustment Points

4-2. FM SECTION ADJUSTMENT (Refer to Fig. 4-2 & 4-3)

NOTES:

1. Set the SSG to 75kHz deviation, 1kHz for [C] [A] [U] [S] models, 40kHz deviation, 1kHz for [B] [E] [V] models.
2. Readjust step 2 to step 6, in case T1 is turned more than a quarter turn obtaining the proper distortion (STEREO).
3. Confirm that the sensitivity margin between Low and High Range sensitivities is within 3dB, otherwise readjust Low and High Range sensitivity.
4. In step 2,3 normally confirmation only, except waved coil by mistake.
5. 0dBμ = 1μV.

Step	Adjustment Item	SSG FREQ/ATT	SET TUNING	Adjustment Part	Result	Remarks
1	FM OSC	NO SIGNAL INPUT	87.5MHz	L7 (FRONT END)	3.5±0.05V	Connect the DC Voltmeter between JW17 and GND.
2	FM LOW Range Sensitivity	87.5MHz (MONO) 6dBμ	87.5MHz	L1 to L4 L1 to L5 ([V] MODEL only) (FRONT END)	Within 3% Distortion	Depress the MODE selector to select MONO mode. See NOTE 4.
3	FM HIGH Range Sensitivity	108.0MHz (MONO) 6dBμ	108.0MHz			
4	For best Result, Repeat steps 2 and 3, two or three times.					
5	FM CENTER VOLTAGE	NO SIGNAL INPUT	See Remarks	T6	0V	Connect the DC Voltmeter between TP1 and TP2. Tune only noise without interference from Broadcasting.
6	Distortion Factor (MONO)	87.5MHz (MONO) 60dBμ	87.5MHz	T7	Less than 0.3%	
7	For best Result, Repeat steps 5 and 6, two or three times.					
8	MPX Free Running Frequency	—	—	VR1	19kHz±50Hz	Connect a Frequency Counter to TP3.
9	STEREO Separation	98.0MHz STEREO Lch (Rch) 60dBμ	98.0MHz	VR2	Minimum output of Rch (Lch)	
10	Distortion (STEREO)	98.0MHz STEREO Lch (Rch) 60dBμ	98.0MHz	T1 (FRONT END)	Less than 0.6% (Both channel)	

4-3. LW SECTION ADJUSTMENT (Refer to Fig. 4-1 & 4-3)

NOTES:

1. Set the SSG to 30%, 1kHz of each.
2. Confirm that the sensitivity margin between Low and High Range sensitivities is within 6dBμ, otherwise readjust Low and High Range sensitivity.

Step	Adjustment Item	SSG FREQ/ATT	SET TUNING	Adjustment Part	Result	Remarks
1	LW OSC	NO SIGNAL INPUT	350kHz	T5	8.2±0.1V	Connect the DC Voltmeter between JW17 and GND.
2	LOW Range Sensitivity	106kHz 70dBμ	160kHz	T3	Within 10% Distortion Factor	
3	High Range Sensitivity	300kHz 70dBμ	300kHz	VC2	Within 10% Distortion Factor	
4	For best Result, Repeat Steps 2 and 3, two or three times.					
5	Distortion (Confirmation)	200kHz 74dBμ	200kHz	NONE	Less than 3.5%	

4-4. AM (MW) SECTION ADJUSTMENT (Refer to Fig. 4-1 & 4-3)

NOTES:

1. Set the S.S.G. to 30% 1kHz of each.
2. Confirm that the sensitivity margin between Low and High Range sensitivities is within 6dBμ, otherwise readjust Low and High Range Sensitivity.
3. (kHz) in result & Remarks indicates the test frequencies is AM 10kHz STEP area.

Step	Adjustment Item	SSG FREQ/ATT	SET TUNING	Adjustment Part	Result	Remarks
1	AM (MW) OSC	NO SIGNAL INPUT	1,404kHz (1,400kHz)	T4	6.7V±0.1V	Connect the DC Voltmeter between JW17 and GND.
2	Low Range Sensitivity	603kHz (600kHz) 60dBμ	603kHz (600kHz)	T2	Within 10% Distortion Factor	
3	High Range Sensitivity	1,404kHz (1,400kHz) 60dBμ	1,404kHz (1,400kHz)	VC1	Within 10% Distortion Factor	
4	For best Result, repeat steps 2 and 3, two or three times.					
5	AM IF	603kHz (600kHz) 74dBμ	603kHz (600kHz)	T1	Maximum output	
6	Distortion (Confirmation)	999kHz (1,000kHz) 74dBμ	999kHz (1,000kHz)	NONE	Less than 2%	

V. PARTS LIST

ATTENTION

1. When placing an order for parts, be sure to list Part No., Model No. and the description of each part. Otherwise, the non-delivery of the part or the delivery of a wrong part may result.
2. Please make sure that Part No. is correct when ordering. If not, a part different from the one you ordered may be delivered.
3. Since the parts shown in Parts List of Preliminary Service Manual may have been the subject of changes, please use this Parts List for all future reference.

HOW TO USE THIS PARTS LIST

1. This Parts List lists those parts which are considered necessary for repairs. Other common parts, such as resistors and capacitors, are listed in the "Common List for Service Parts" from which these parts should be selected and stocked.
2. The Recommended Spare Parts List shows those parts in the Parts List which are considered particularly important for service.
3. Parts not shown in the Parts List and "Common List for Service Parts" will not in principle be supplied.
4. How to read the Parts List.

a) Mechanism Block

2. HEAD BASE BLOCK

REF. NO.	PART NO.	DESCRIPTION
2-1x	BH-T2023A320A	HEAD BASE BLOCK
2-2	HP-H2206A010A	HEAD R/P PR4-8FU C
2-3	ZS-477876	PAN20×03STL CMT
2-4	ZS-536488	BID20×08STL CMT
2-5	ZG-402895	SP CS ANGLE ADJUST

- SP (Service Parts) Classification
- A small "x" indicates that this part is not shown in the Photo or Illustration.
- This number corresponds with the individual parts index number in that figure.
- This number corresponds with the Figure Number.

b) PC Board

6. MAIN PC BOARD

REF. NO.	PART NO.	DESCRIPTION
6-IC1	EI-324536	IC HD14049BP
6-IC2	EI-336801	IC MB8841-564M
6-C1A	EC-338399	C MMY V 223M 250AC [U,E,B,S]
6-C1B	EC-350949	C MMY V 223M 250DC [J]
6-C1C	EC-338397	C MMY V 223M 125AC [C,A]
6-X1	EI-318384	OSC X'TAL NC-18C

- Symbols for primary destination
  - [A]: AAL(U.S.A.) [S]: SAA(Australia)
  - [B]: BEAB(England) [U]: U/T(Universal Area)
  - [C]: CSA(Canada) [V]: VDE(W. Germany)
  - [E]: CEE(Europe) [Y]: Custom Version
  - [J]: JPN(Japan)
- SP (Service Parts) Classification
- These reference symbols correspond with component symbols in the Schematic Diagrams.

The available PC Board Blocks are listed separately.

5. When Part No. is known, Parts Index at end of Parts List can be used to locate where that part is shown in Parts List by its Reference No. listed at right of Part No.

WARNING

⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURE'S RECOMMENDED PARTS

AVERTISSEMENT

⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÉCES RECOMMANDEES PAR LÉ FABRICANT

RECOMMENDED SPARE PARTS

Because, if the parts listed below are on hand, almost any repair can be accomplished, we suggest that you stock these Recommended Spare Parts Items.

REF. NO.		PART NO.	DESCRIPTION
1	N	BT-363296	⚠ TRANS POWER AT-T-73 [U]
2	N	BT-363294	⚠ TRANS POWER AT-T-22 [C,A]
3	N	BT-364779	⚠ TRANS POWER AT-T-40 [E,V]
4	N	BT-363297	⚠ TRANS POWER AT-T-51 [B,S]
5	N	EC-363331	C S-FIX CTC-6U-030 5.5-30
6	N	EC-363329	C S-FIX H CTC-64-010 2.5-10
7		ED-345555	⚠ D SILICON DBB10C 200/1.0A
8		ED-301911	D SILICON H DS448
9		ED-349460	D VARACTOR SVC321 A,B,C,D DOUBLE
10		ED-349448	D VARACTOR 1SV147
11		ED-346617	D ZENER H HZ12 C2 [U,C,A,E,V]
12		ED-346618	D ZENER H HZ15 1 [B,S]
13		ED-306320	D ZENER H HZ15 2
14		ED-309069	D ZENER H HZ6 B2
15		EE-359265	ANT LOOP LA-200A-A
16		EF-308933	⚠ FUSE TSC A 250V 0.20A [U]
17		EF-309390	⚠ FUSE TSC 125V 0.50A [C,A]
18		EF-695766	⚠ FUSE SEMKO T 315MA 250V [E,V,S]
19	N	EF-355385	⚠ FUSE BET T 310MA 250V [B]
20		EI-361624	IC LA1265
21	N	EI-363289	IC TC9172
22	N	EI-363290	IC TC9302F-011
23		EI-351849	IC μPC1235C
24		EI-344422	OSC X'TAL HC-18/U 7.200000MHz
25	N	EL-362308	PL CORD 14.0V 80MA L=80
26		EM-361644	IND LCD 9419P
27		EO-337598	COIL VARI 2 25A-1353-01
28		EO-337599	COIL VARI 2 25A-1354-03
29	N	ES-363292	SW SLIDE 00120156 01-2 [U]
30		ES-348463	⚠ SW SLIDE 00120297 01-2 [U]
31	N	ES-363293	SW PUSH SPUL19
32		ES-349474	SW TACT SKHHAM004A
33		ET 349459	⚠ TR 2SD1406 O,Y,GR
34		ET-349449	TR FET 2SK161 O,Y
35		ET-349458	TR FET 2SK192A Y [L]
36		ET-337759	TR FET 2SK246 GR
37		ET-353899	TR 2SA1317 S,T,U
38		ET-308141	TR 2SC2603G F05
39		ET-338410	TR 2SC2878 A,B
40		ET-336869	TR 2SC2999 C,D
41		ET-349081	TR 2SC3383 S,T
42		ET-356437	TR 2SC930 D2,E,F [L]
43		ET-328265	TR 2SC930 F
44		ET-347961	TR 2SD1012-V G F05 [L]
45		ET-355153	TR 2SD1406 O,Y
46		EV-361673	R S-FIX H RH0615CN5J 3P 334
47		EV-356576	R S-FIX H RH0615CS3J 3P 472
48		EZ-358816	BATTERY LITHIUM BR2032-1HF

"NOTE" N: New Parts

1. PC BOARD BLOCK

REF. NO.	PART NO.	DESCRIPTION
1-1	BA-A3054A040A	PC TUNER BLK AT-A102 [U]
1-1A	BA-A3054A040B	PC TUNER BLK AT-A102 [C,A]
1-1B	BA-A3054A040C	PC TUNER BLK AT-A102 [E]
1-1C	BA-A3054A040D	PC TUNER BLK AT-A102 [V]
1-1D	BA-A3054A040E	PC TUNER BLK AT-A102 [S]
1-1E	BA-A3054A040F	PC TUNER BLK AT-A102L [E]
1-1F	BA-A3054A040G	PC TUNER BLK AT-A102L [B]
1-2	BA-F0131A010A	PC FRONT END BLK FE31 [U,C,A, S,E,B]
1-2A	BA-F0141A010B	PC FRONT END BLK FE41 [V]

NOTE:
PC TUNER BLK consists of following PC BOARDS.
- TUNER PC BOARD
- POWER SUPPLY PC BOARD
- FRONT END PC BOARD

2. TUNER PC BOARD

REF. NO.	PART NO.	DESCRIPTION
2-IC1	EI-361624	IC LA1265
2-IC2	EI-351849	IC μPC1235C
2-IC3	EI-363289	IC TC9172
2-IC4	EI-363290	IC TC9302F-011
2-TR1	ET-356437	TR 2SC930 D2,E,F
2-TR2	ET-338410	TR 2SC2878 A,B [L]
2-TR3,4	ET-349081	TR 2SC3833 S,T
2-TR5	ET-349458	TR FET 2SK192A Y [L]
2-TR6,7	ET-308141	TR 2SC2603 G F05 [L]
2-TR10 to 12	ET-308141	TR 2SC2603 G F05
2-TR13	ET-353899	TR 2SA1317 S,T,U
2-TR14	ET-349081	TR 2SC3383 S,T [EXCEPT L]
2-TR14A	ET-347961	TR 2SD1012-V G F05 [L]
2-TR15	ET-349081	TR 2SC3383 S,T [EXCEPT L]
2-TR15A	ET-347961	TR 2SD1012-V G F05 [L]
2-TR16	ET-353899	TR 2SA1317 S,T,U
2-TR17	ET-308141	TR 2SC2603 G F05
2-TR18	ET-353899	TR 2SA1317 S,T,U
2-TR19	ET-349081	TR 2SC3383 S,T
2-TR20	ET-337759	TR FET 2SK246 GR
2-TR21	ET-308141	TR 2SC2603 G F05
2-TR22	ET-353899	TR 2SA1317 S,T,U
2-TR25	ET-308141	TR 2SC2603 G F05
2-TR26	ET-353899	TR 2SA1317 S,T,U [U]
2-D1,2	ED-349460	D VARACTOR SVC321 A,B,C,D DOUBLE
2-D3 to 6	ED-301911	D SILICON H DS448 [L]
2-D7 to 17	ED-301911	D SILICON H DS448
2-D18	ED-301911	D SILICON H DS448 [L]
2-D20	ED-301911	D SILICON H DS448 [C,A]
2-D21	ED-301911	D SILICON H DS448
2-D24 to 27	ED-301911	D SILICON H DS448
2-D32	ED-309069	D ZENER H HZ6 B2
2-SW1	ES-363292	SW SLIDE 00120156 01-2 [U]
2-SW3 to 15	ES-349474	SW TACT SKHHAM004A
2-VR1	EV-356576	R S-FIX H RH0615 CS3J 3P 472
2-VR2	EV-361673	R S-FIX H RH0615CN5J 3P 334
2-FL1	EH-355568	FILTER CE SFE10.7MS2GY-A [EXCEPT V]
2-FL1A	EH-338338	FILTER CE SFE10.7MS3GK-A [V]
2-FL2	EH-355568	FILTER CE SFE10.7MS2GY-A
2-FL3	EH-344434	FILTER CE BFU450C4N 0.450MHz
2-FL4	EH-363344	FILTER LC LP 123-5010-03 [V]
2-IN1	EM-361644	IND LCD 9419P
2-IN2	EL-362308	PL CORD 14.0V 80MA L=80
2-L1,2	EO-337523	COIL FIX 1 L-8 223J
2-L3	EO-336934	COIL FIX 1 LAL03KH 2R2M
2-T1	EO-356732	COIL IFT BCFLZ-450A
2-T2	EO-337598	COIL VARI 2 25A-1353-01

REF. NO.	PART NO.	DESCRIPTION
2-T3	EO-337599	COIL VARI 2 25A-1354-03 [L]
2-T4	EO-363279	COIL OSC 2 A7NRS-9857x 150.0UH
2-T5	EO-352089	COIL OSC 2 7BRS-9098x 580.0UH [L]
2-T6	EO-363291	COIL DET 2 78-1128-01
2-T7	EO-361630	COIL DET 2 78-1126-02
2-X1	EI-344422	OSC X'TAL HC-18/U 7.200000MHz
2-R6	ER-324184	⚠ R CB H S10 FS RDS 1/4W 121J
2-R7	ER-306805	⚠ R CB H S15 FS RDS 1/2W 101J
2-R25	ER-333406	⚠ R CB H S10 FS RDS 1/4W 363J
2-R61	ER-306805	⚠ R CB H S15 FS RDS 1/2W 101J
2-R75	ER-333422	⚠ R CB H S10 FS RDS 1/4W 563J
2-VC1	EC-363329	C S-FIX H CTC-64-010 2.5-10 [EXCEPT L]
2-VC1A	EC-363331	C S-FIX CTC-6U-030 5.5-30 [L]
2-VC2	EC-363331	C S-FIX CTC-6U-030 5.5-30 [L]
2-C10	EC-356597	C PP V F05 PP 431J 50DC [EXCEPT L]
2-C10A	EC-353044	C PP V F05 PP 511J 50DC [L]
2-C11	EC-365148	C PP V F05 PP 241J 50DC [L]
2-C44	EC-353044	C PP V F05 PP 511J 50DC [EXCEPT C,A]
2-C44A	EC-351998	C PP V F05 PP 821J 50DC [CA]
2-C45	EC-353044	C PP V F05 PP 511J 50DC [EXCEPT C,A]
2-C45A	EC-351998	C PP V F05 PP 821J 50DC [C,A]
2-C56	EC-347471	C PP V F05 PP 471J 50DC
2-C59	EC-347471	C PP V F05 PP 471J 50DC
2-C63	EC-347093	C PP V F05 PP 331J 50DC [V]
2-J1	EJ-361062	PHONE J YKB21-5019 3.5
2-TM1	EJ-359031	TERMINAL LEVER YK D31-0215 P 2P
2-BT1	EZ-358816	BATTERY LITHIUM BR2032-1HF
2-1	BA-F0131A010A	PC FRONT END BLK FE31 (U,C,A,S,E,B)
2-1A	BA-F0141A010B	PC FRONT END BLK FE41 (V)
2-2	EZ-361808	HOLDER LAMP EQ-300-42101A (WHITE)

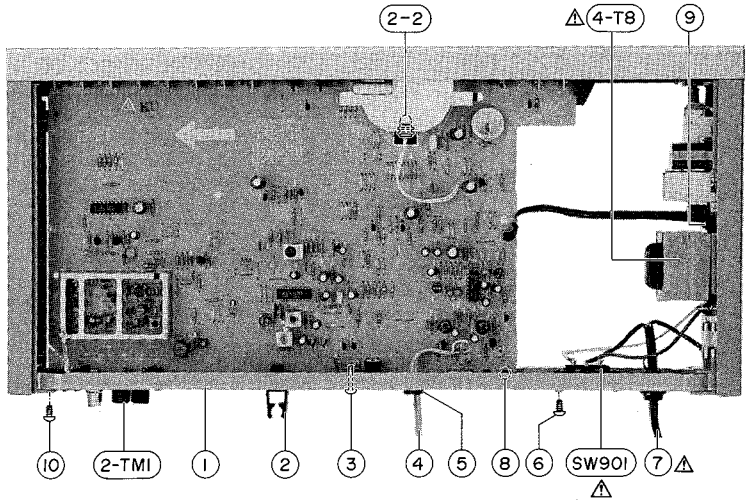
3. FRONT END PC BOARD

REF. NO.	PART NO.	DESCRIPTION
3-TR1	ET-349449	TR FET 2SK161 O,Y
3-TR2	ET-336869	TR 2SC2999 C,D
3-TR3	ET-328265	TR 2SC930 F
3-TR4	ET-349449	TR FET 2SK161 O,Y
3-D1,2	ED-349448	D VARACTOR 1SV147
3-D3	ED-349448	D VARACTOR 1SV147 [V]
3-D4	ED-349448	D VARACTOR 1SV147
3-L1	EO-349461	COIL FIX 2 LINK
3-L2	EO-349462	COIL FIX 2 U147
3-L3	EO-349461	COIL FIX 2 LINK
3-L4	EO-349462	COIL FIX 2 U147
3-L5	EO-349462	COIL FIX 2 U147 [V]
3-L6	EO-359056	COIL FIX 1 LAL03NA 2R2M
3-L7	EO-353687	COIL OSC 2 E525HN-110003
3-T1	EO-337640	COIL IFT 119AC-15533x 10.7MHz

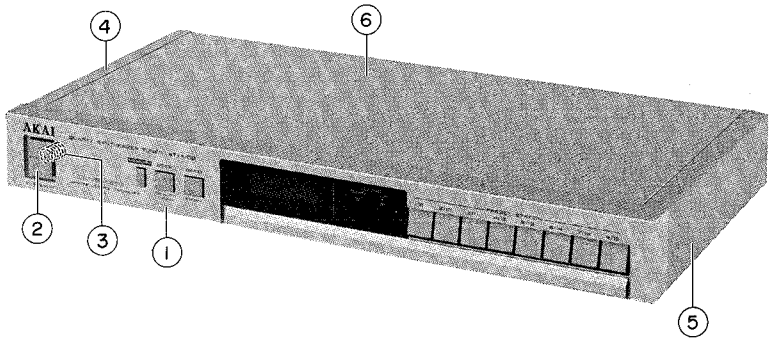
4. POWER SUPPLY PC BOARD

REF. NO.	PART NO.	DESCRIPTION
		POWER SUPPLY PC BOARD
4-TR23	ET-308141	⚠ TR 2SC2603 G F05
4-TR24	ET-349459	⚠ TR 2SD1406 O,Y,GR
4-D31	ED-306320	D ZENER H HZ15 2
4-D33	ED-346617	D ZENER H HZ12 C2 [U,C,A,E,V]
4-D33A	ED-346618	D ZENER H HZ15 1 [B,S]
4-D34	ED-345555	⚠ D SILICON DBB10C 200/1.0A
4-SW2	ES-363293	SW PUSH SPUL 19
4-T8	BT-363296	⚠ TRANS POWER AT-T-73 [U]
4-T8A	BT-363294	⚠ TRANS POWER AT-T-22 [C,A]
4-T8B	BT-364779	⚠ TRANS POWER AT-T-40 [E,V]
4-T8C	BT-363297	⚠ TRANS POWER AT-T-51 [B,S]
4-R125	ER-328067	⚠ T CB H S10 FS RDS 1/4W 331J
4-R129	ER-356573	⚠ R SD ANTI-STATIC 1/2W 225K [C,A]
4-C93	EC-201750	C EC V CUT USM 102M 35.0DC
		ASSEMBLY BLOCK
4-F1	EF-309390	⚠ FUSE TSC 125V 0.50A [C,A]
4-F1A	EF-695766	⚠ FUSE SEMKO T 310MA 250V [E,V,S,L (E)]
4-F1B	EF-355385	⚠ FUSE BET T 310MA 250V [L(B)]
4-F2	EF-308933	⚠ FUSE TSC A 250V 0.20A [U]

ASSEMBLY BLOCK



FINAL ASSEMBLY BLOCK



5. ASSEMBLY BLOCK

REF. NO.	PART NO.	DESCRIPTION
5-1	SP-361848A	PANEL REAR AT-A102 (U)
5-1A	SP-361848B	PANEL REAR AT-A102 (C,A)
5-1B	SP-361848C	PANEL REAR AT-A102 (E,V)
5-1C	SP-361848D	PANEL REAR AT-A102 (S)
5-1D	SP-361848E	PANEL REAR AT-A102L (E)
5-1E	SP-361848F	PANEL REAR AT-A102L (B)
5-2	SZ-362273	HOLDER ANTENNA (2)
5-3	ZS-351533	T2BR30X15STL N13 GUIDE
5-4	EW-336757	CORD SAE-020 PINX2 [EXCEPT C,A]
5-4A	EW-336758	CORD SAE-021 PINX2 [C,A]
5-5	EZ-631945	STRAIN RELIEF SR-4N-4
5-6	ZS-351886	PT BR30X10STL BNI [SW901 FIX] [U]
5-7	EW-363658	⚠ AC CORD 200 0129AVF F B100 A U/T [U]
5-7A	EW-363787	⚠ AC CORD 200 KP-8WSPT1 B100 A UC [C,A]
5-7B	EW-363671	⚠ AC CORD 200 0364 LCFL B100AEV [E,V]
5-7C	EW-363697	⚠ AC CORD 200 0436 LCFL B100 A S [S]
5-7D	EW-363683	⚠ AC CORD 200 LCFL B100 A B [B]
5-8	ZW-698308	RV NYL30X055 BL
5-9	ZS-363334	PT BR30X14STL BNI C [POWER TRANS FIX]
5-10	ZS-308846	T2BR30X08STL BZN PROJECTION [COVER T-1 FIX]
5-11x	EE-359265	ANT LOOP LA-200A-A
5-SW901	ES-348463	⚠ SW SLIDE 00120297 01-2 [U]

6. FINAL ASSEMBLY BLOCK

REF. NO.	PART NO.	DESCRIPTION
	PANEL FRONT PART	
6-1	BD-B361849A	PANEL FRONT AT-A102 PART
6-1A	BD-B361849C	PANEL FRONT AT-A102L PART
6-1-B	BD-B361849B	PANEL FRONT AT-A102-B PART
6-1A-B	BD-B361849D	PANEL FRONT AT-A102L-B PART
6-2	SK-343017C	KNOB POWER (2)
6-2-B	SK-343017F	KNOB POWER-B
6-3	ZG-355238	SP PUSH POWER
	FINAL ASSEMBLY BLOCK	
6-4	SP-361850A	PANEL SIDE (L)
6-4-B	SP-361850B	PANEL SIDE (L)-B
6-5	SP-361851A	PANEL SIDE (R)
6-5-B	SP-361851B	PANEL SIDE (R)-B
6-6	BC-358993A	COVER T-1 [COVER UPPER]
6-6-B	BC-358993G	COVER T-1B [COVER UPPER]
	ACCESSORIES	
6-7x	EJ-352118	SOCKET COAX PAL B2-714P-900
6-8x	AX-A3054A050A	ANTI-SLIP SET BLK AT-A102 (Rubber foot pads and Plastic stopper)

NOTE: PANEL FRONT PART consists of 6-2, 6-3.
SYMBOL FOR COLOR VARIATION
NON : STANDARD COLOR
-B : BLACK
ANTI-SLIP SET BLK

INDEX

PART NO.	REF. NO.	PART NO.	REF. NO.	PART NO.	REF. NO.	PART NO.	REF. NO.	PART NO.	REF. NO.
AX-A3054A050A	6-8x	EJ-359031	2-TM1	EZ-358816	2-BT1				
BA-A3054A040A	1-1	EJ-361062	2-J1	EZ-361808	2-2				
BA-A3054A040B	1-1A	EL-362308	2-IN2	EZ-631945	5-5				
BA-A3054A040C	1-1B	EM-361644	2-IN1	SK-343017C	6-2				
BA-A3054A040D	1-1C	EO-336934	2-L3	SK-343017F	6-2-B				
BA-A3054A040E	1-1D	EO-337523	2-L2	SP-361848A	5-1				
BA-A3054A040F	1-1E	EO-337523	2-L1	SP-361848B	5-1A				
BA-A3054A040G	1-1F	EO-337598	2-T2	SP-361848C	5-1B				
BA-F0131A010A	1-2	EO-337599	2-T3	SP-361848D	5-1C				
BA-F0131A010A	2-1	EO-337640	3-T1	SP-361848E	5-1D				
BA-F0141A010B	1-2A	EO-349461	3-L3	SP-361848F	5-1E				
BA-F0141A010B	2-1A	EO-349461	3-L1	SP-361850A	6-4				
BC-358993A	6-6	EO-349462	3-L4,5	SP-361850B	6-4-B				
BC-358993G	6-6-B	EO-349462	3-L2	SP-361851A	6-5				
BD-B361849A	6-1	EO-352089	2-T5	SP-361851B	6-5-B				
BD-B361849B	6-1-B	EO-353687	3-L7	SZ-362273	5-2				
BD-B361849C	6-1A	EO-356732	2-T1	ZG-355238	6-3				
BD-B361849D	6-1A-B	EO-359056	3-L6	ZS-308846	5-10				
BT-363294	4-T8A	EO-361630	2-T7	ZS-351533	5-3				
BT-363296	4-T8	EO-363279	2-T4	ZS-351886	5-6				
BT-363297	4-T8C	EO-363291	2-T6	ZS-363334	5-9				
BT-364779	4-T8B	ER-306805	2-R7	ZW-698308	5-8				
EC-201750	4-C93	ER-306805	2-R61						
EC-347093	2-C63	ER-324184	2-R6						
EC-347471	2-C56	ER-328067	4-R125						
EC-347471	2-C59	ER-333406	2-R25						
EC-351998	2-C45A	ER-333422	2-R75						
EC-351998	2-C44A	ER-356573	4-R129						
EC-353044	2-C10A	ES-348463	5-SW901						
EC-353044	2-C45	ES-349474	2-SW3						
EC-353044	2-C44	ES-349474	2-SW9						
EC-356597	2-C10	ES-349474	2-SW4						
EC-363329	2-VC1	ES-349474	2-SW7,8						
EC-363331	2-VC2	ES-349474	2-SW12,13						
EC-363331	2-VC1A	ES-349474	2-SW10						
EC-365148	2-C11	ES-349474	2-SW6						
ED-301911	2-D11	ES-349474	2-SW11						
ED-301911	2-D8	ES-349474	2-SW5						
ED-301911	2-D12	ES-349474	2-SW15						
ED-301911	2-D27	ES-349474	2-SW14						
ED-301911	2-D18	ES-363292	2-SW1						
ED-301911	2-D7	ES-363293	4-SW2						
ED-301911	2-D25	ET-308141	2-TR6,7						
ED-301911	2-D10	ET-308141	2-TR10						
ED-301911	2-D20	ET-308141	2-TR12						
ED-301911	2-D21	ET-308141	2-TR21						
ED-301911	2-D16	ET-308141	2-TR25						
ED-301911	2-D3 to 6	ET-308141	2-TR11						
ED-301911	2-D9	ET-308141	2-TR17						
ED-301911	2-D13	ET-308141	4-TR23						
ED-301911	2-D15	ET-328265	3-TR3						
ED-301911	2-D17	ET-336869	3-TR2						
ED-301911	2-D24	ET-337759	2-TR20						
ED-301911	2-D26	ET-338410	2-TR2						
ED-301911	2-D14	ET-347961	2-TR14A						
ED-306320	4-D31	ET-347961	2-TR15A						
ED-309069	2-D32	ET-349081	2-TR15						
ED-345555	4-D34	ET-349081	2-TR19						
ED-346617	4-D33	ET-349081	2-TR14						
ED-346618	4-D33A	ET-349081	2-TR4						
ED-349448	3-D1	ET-349081	2-TR3						
ED-349448	3-D4	ET-349449	3-TR1						
ED-349448	3-D3	ET-349449	3-TR4						
ED-349448	3-D2	ET-349458	2-TR5						
ED-349460	2-D1,2	ET-349459	4-TR24						
EE-359265	5-11x	ET-353899	2-TR26						
EF-308933	4-F2	ET-353899	2-TR18						
EF-309390	4-F1	ET-353899	2-TR16						
EF-355385	4-F1B	ET-353899	2-TR22						
EF-695766	4-F1A	ET-353899	2-TR13						
EH-338338	2-FL1A	ET-356437	2-TR1						
EH-344434	2-FL3	EV-356576	2-VR1						
EH-355568	2-FL1,2	EV-361673	2-VR2						
EH-363344	2-FL4	EW-336757	5-4						
EI-344422	2-X1	EW-336758	5-4A						
EI-351849	2-IC2	EW-363658	5-7						
EI-361624	2-IC1	EW-363671	5-7B						
EI-363289	2-IC3	EW-363683	5-7D						
EI-363290	2-IC4	EW-363697	5-7C						
EJ-352118	6-7x	EW-363787	5-7A						

ABBREVIATIONS FOR SERVICE MANUAL(TUNER)

MODEL AT-A102/L

ABBREVIATION	EXPLANATION	ABBREVIATION	EXPLANATION
AFC	Auto Frequency Control	MEMO	MEMOry
AGC	Auto Gain Control	MI-COM	MIcro-COMputer
ALC	Auto Level Control	MIN	MINimum
AM	Amplitude Modulation	MIX	MIXing
AMP	AMPlifier	MPX	Multi pleX
ANT	ANTenna	MW	Medium Wave (frequency)
BATT	BATTery	NC	No Connection
BLK	BLocK	NFB	Negative Feed Back
BUFF	BUFFer	OSC	OSCillator
COMP	COMPalator	PCB	Printed Circuit Board
DET	DETect (DETctor)	PLL	Phase Locked Loop
FLD		Q.D	Quadrature Detector
FM	Frequency Modulation	Rch	Right channel
FREQ	FREQuency	REF	REFerence
GND	GrouND	REG	REGulator
H	High	RF	Radio Frequency
HPF	High Pass Filter	SEG	SEGment
IF	Intermediate Frequency	SELE	SELEctor
IHF	Institut of High Fidelity	SENS	SENSitivity
IND	INDicator	SIG	SIGnal
I/O	In/Out	S/N	Signal to Noise Ratio
JW	Jumper Wire	SSG	Standard Signal Generator
L	Low	STD	STanDard
LCD	Liquid Crystal Display	SW	SWitch: Short Wave (frequency)
Lch	Left channel	THD	Total Harmonic Distortion
LED	Light Emiting Diode	TP	Test Point
LPF	Low Pass Filter	VCO	Voltage Controlled Oscillator
LW	Long Wave (Frequency)	VR	Variable Resistor
		X'TAL	Crystal

AKAI ELECTRIC CO., LTD.

12-14, 2-Chome, Higashi-Kojiya, Ohta-Ku, Tokyo, Japan

TEL: Tokyo (742) 5111 CABLE: HIFIAKAI TOKYO TELEX: J26261

Printed No. 860313-K1-3500 Printed Date: April 2, 1986

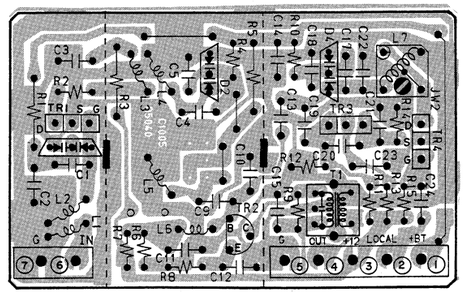
350 Printed in Japan

AKAI

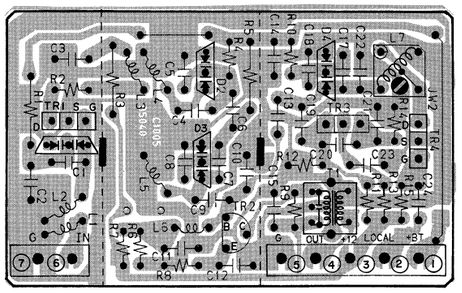
MODEL AT-A102/L

SCHEMATIC DIAGRAM AND PC BOARD

1. FRONT END PCB, POWER PCB, POWER SUPPLY PCB, TUNER PCB 2
2. AT-A102 SCHEMATIC DIAGRAM 3
3. AT-A102L SCHEMATIC DIAGRAM 4
4. FRONT END PCB, POWER PCB, POWER SUPPLY PCB, TUNER PCB 5
5. AT-A102 BLOCK DIAGRAM 6

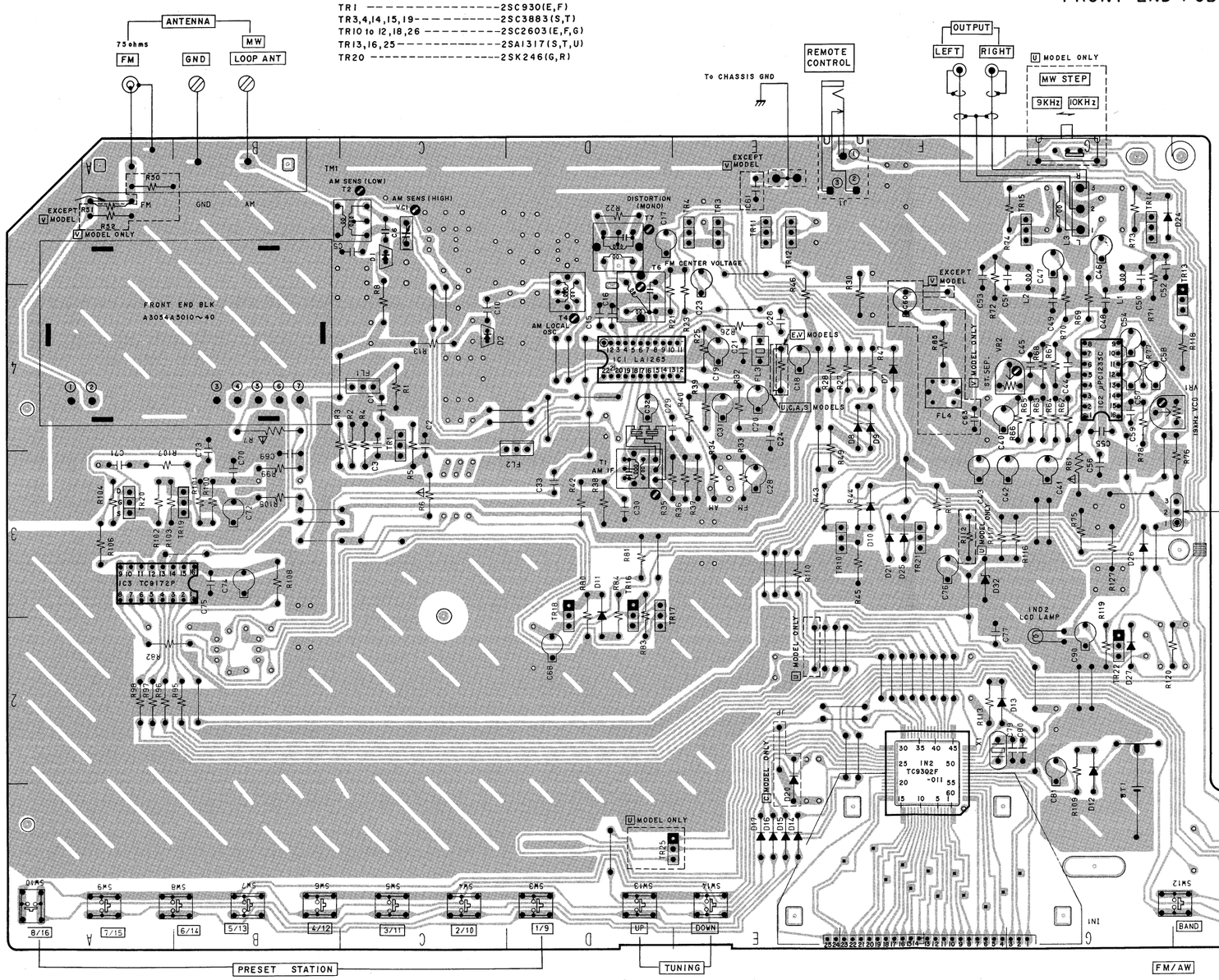


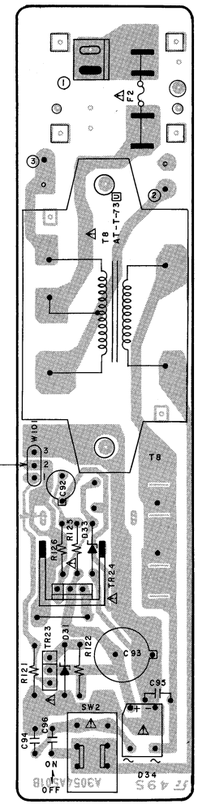
FRONT END PCB CI005B5040



FRONT END PCB CI005B5040
V MODEL ONLY

TR1 ----------2SC930(E,F)
TR3,4,14,15,19----------2SC3883(S,T)
TR10 to 12,18,26 ----------2SC2603(E,F,G)
TR13,16,25----------2SA1317(S,T,U)
TR20 ----------2SK246(G,R)





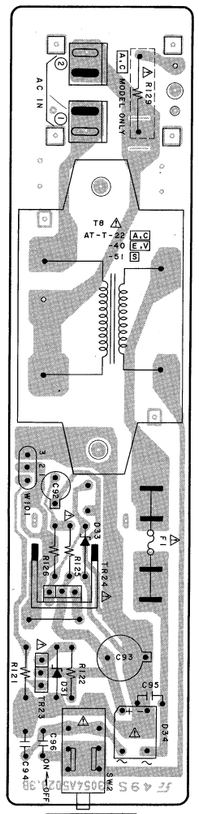
POWER PCB A3054A501B U

POWER ON/STANDBY

2SC2603

2SD1406

TR23 2SC2603 (E,F,G)
TR24 2SD1406 (O,Y)



POWER SUPPLY PCB A3054A502B,3B C,A,E,V,S

POWER ON/STANDBY

B = NPN TRANSISTOR
B = PNP TRANSISTOR

TUNER PCB A3054A501A U
502A C,A
503A E,V,S

LOCATION OF COMPONENTS

IC's
IC1---D4
IC2---G4
IC3---A,B3
IC4---F1,2

TR's
TR1---C3,4
TR3---E5
TR4---E5
TR10---E,F3
TR11---E5
TR12---E5
TR13---H4
TR14---G5
TR15---G5
TR16---D2,3
TR17---D2,3
TR18---D2,3
TR19---B3
TR20---A3
TR21---F3
TR22---G2
TR25---H1
TR26---D,E1

2SC930
2SC3883

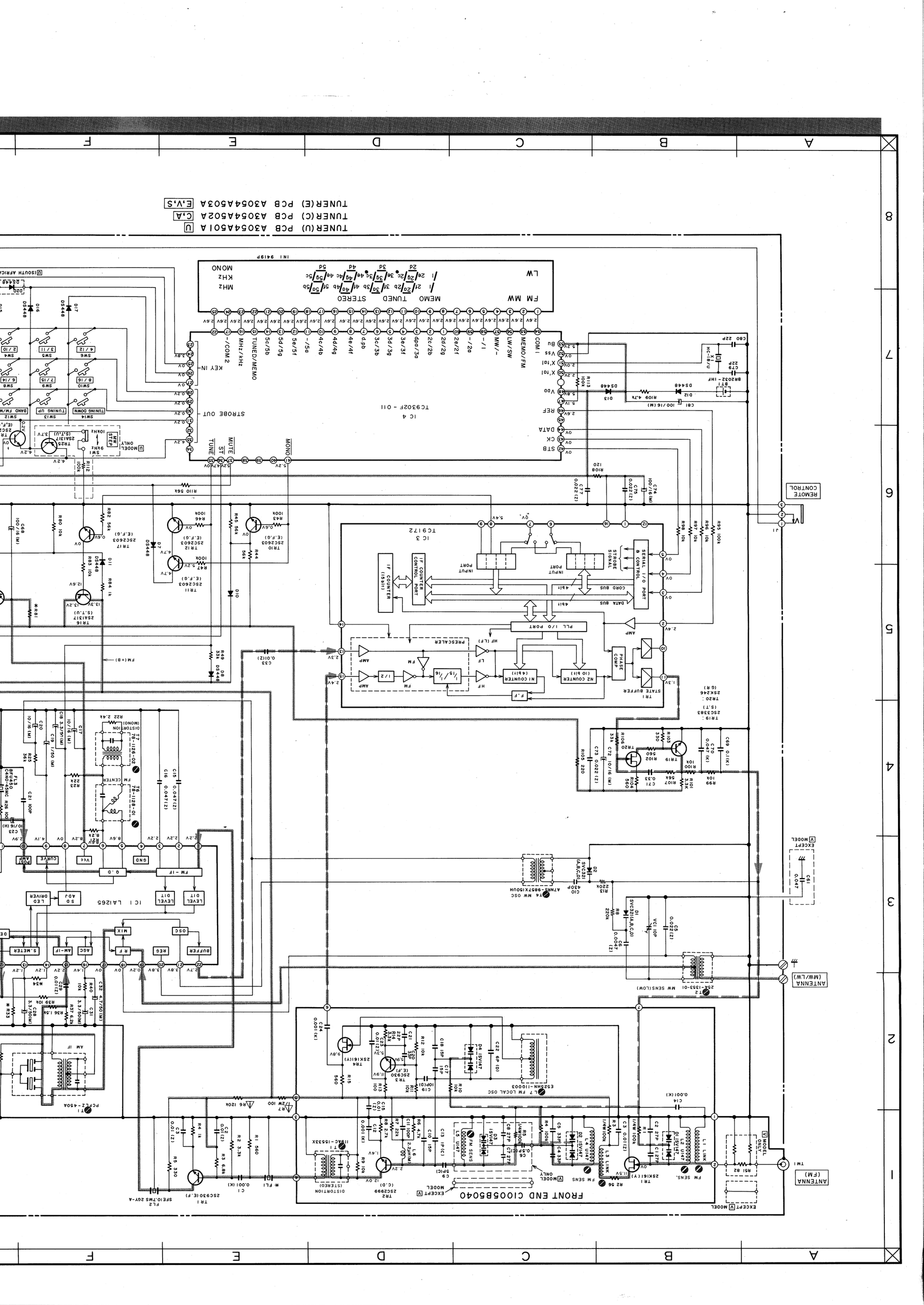
2SC2603
2SA1317

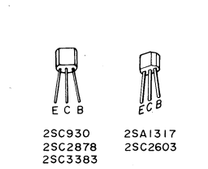
2SK246

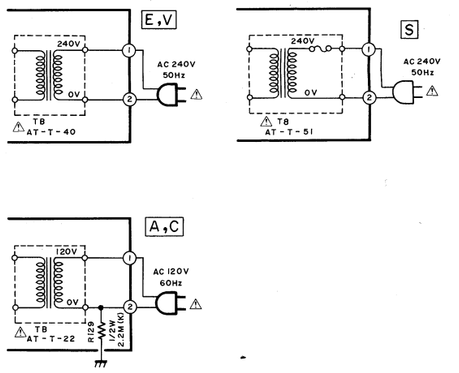
WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

TUNER(U) PCB A30544501A U
TUNER(C) PCB A30544502A C,A
TUNER(E) PCB A30544503A E,V,S







*DEFERENCE ACCORDING TO DISTINATION

*	C	A	E	S	U	V
FL1	SFE10.7Ms 3GK-A					SFE10.7 Ms2GY-A
R31	JUMPER		6.2K	JUMPER		10K
R33	5.1K					10K
R34	6.2K					3.9K
R66	56K		36K	56K		30K
R81	220			240		220
R127	22			27		22
C44	820P			510P		
D33	HZ12-2			HZ15-1		HZ12-2

*	F1	F2
U		250V 200mA
A C	125V 500mA	
E S V	250V T315mA	

INDICATED VOLTAGES ARE MEASURED AT "FM" "STEREO" AND "TUNED" MODE.

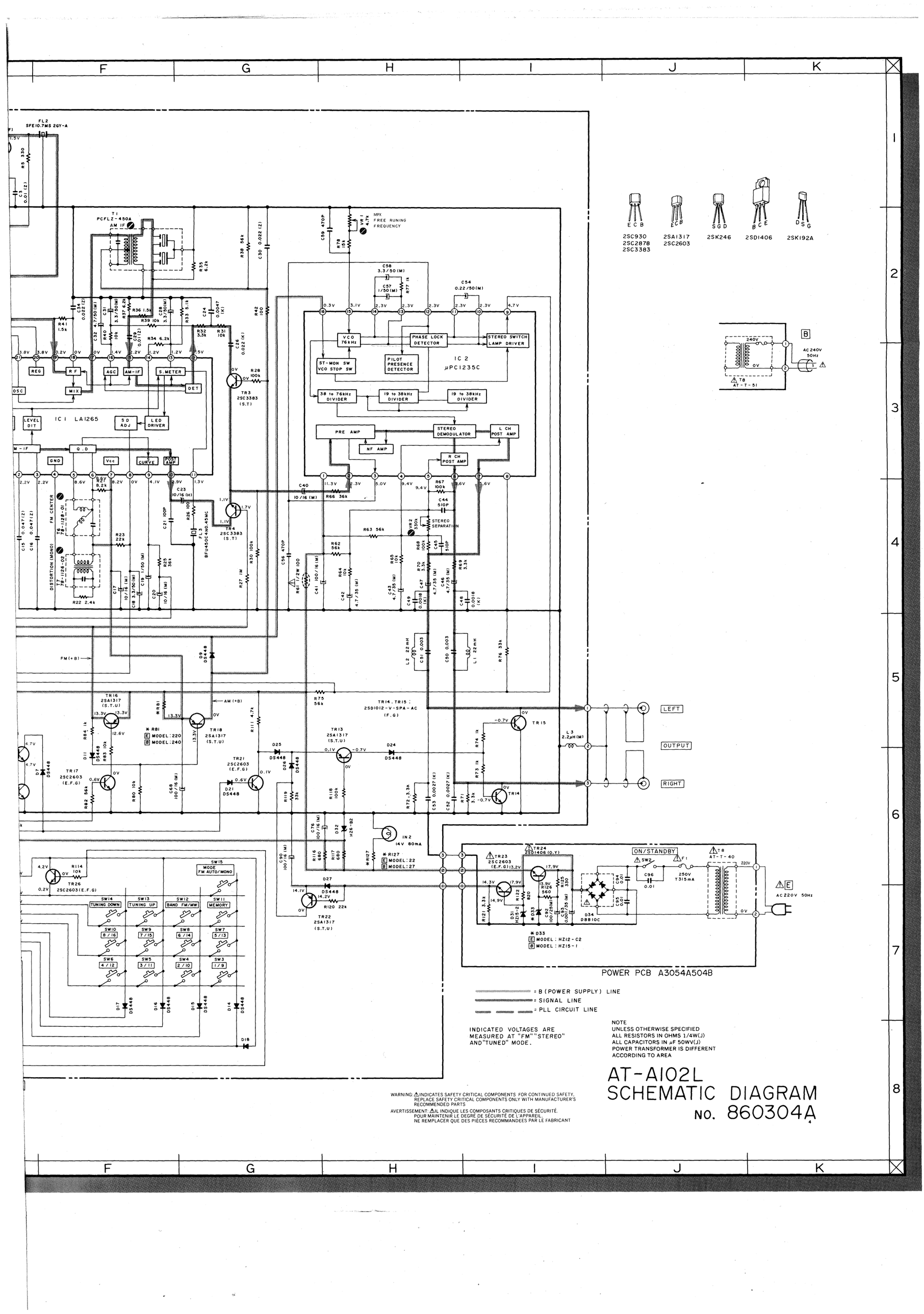
NOTE
UNLESS OTHERWISE SPECIFIED
ALL RESISTORS IN OHMS 1/4W(J)
ALL CAPACITORS IN μF 50WV(J)
POWER TRANSFORMER IS DIFFERENT ACCORDING TO AREA

AT-A102 SCHEMATIC DIAGRAM NO. 860303A 4

WARNING: ⚠ INDICATES SAFETY CRITICAL COMPONENTS. FOR CONTINUED SAFETY, REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠ IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDÉES PAR LE FABRICANT

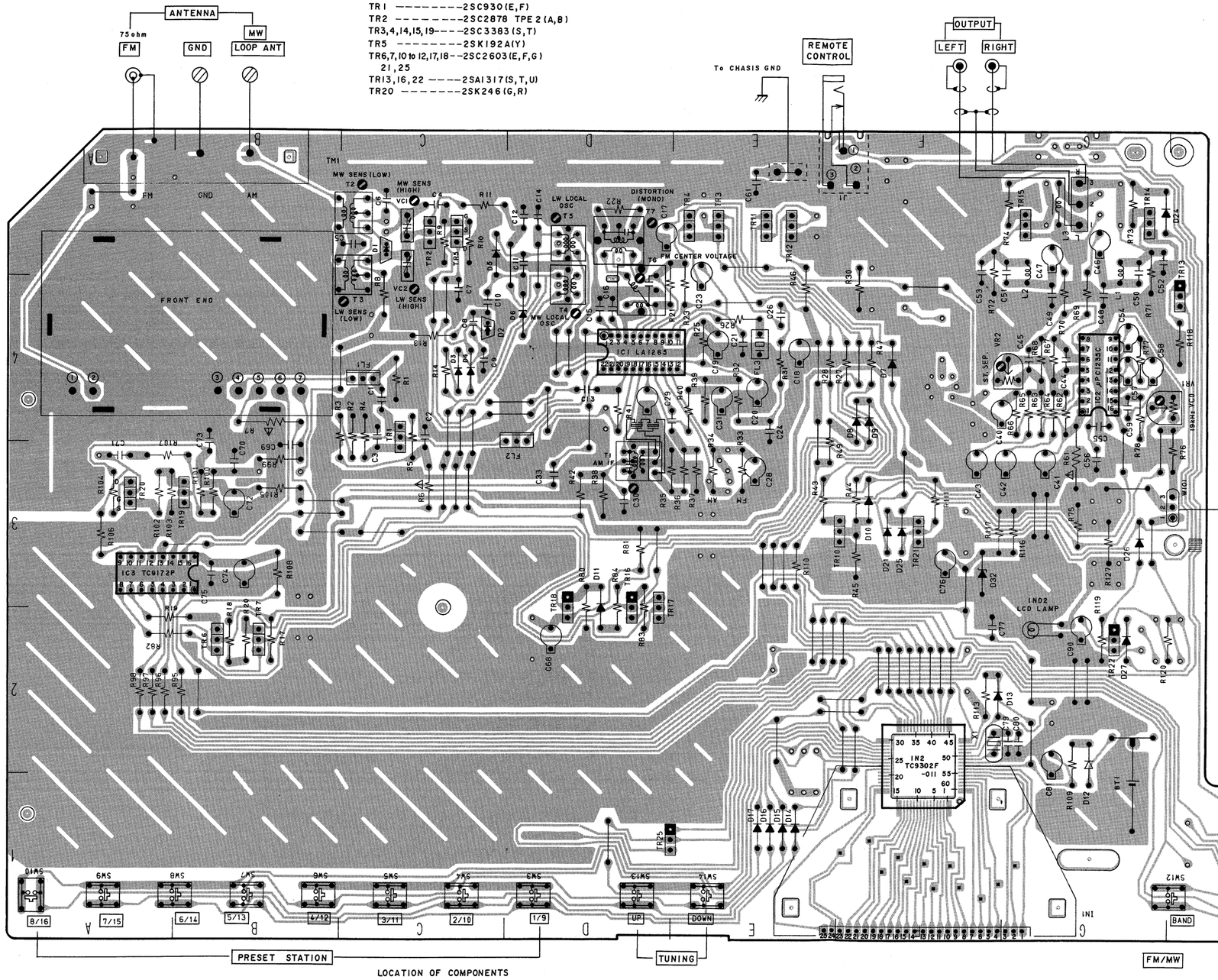
TUNER(L) PCB A3054A504A E,B

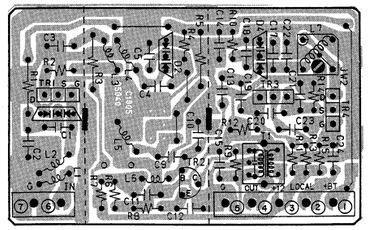


AT-A102L SCHEMATIC DIAGRAM

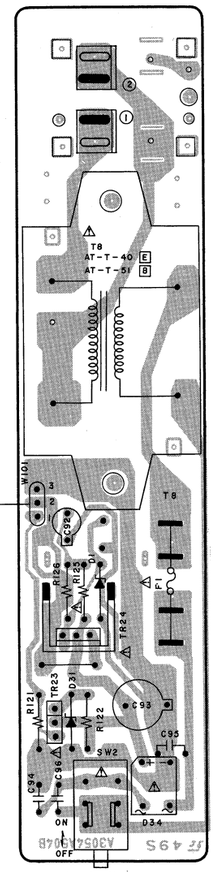
NO. 860304A

TR1 ---------2SC930(E,F)
TR2 ---------2SC2878 TPE2(A,B)
TR3,4,14,15,19----2SC3383(S,T)
TR5 ---------2SK192A(Y)
TR6,7,10 to 12,17,18--2SC2603(E,F,G)
21,25
TR13,16,22 ----2SA1317(S,T,U)
TR20 --------2SK246(G,R)

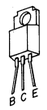




FRONT END PCB CI005B5040



2SC2603



2SD1406(O,Y)

TR23 2SC2603(E,F,G)
TR24 2SD1406(O,Y)

POWER PCB
A3054A504B E,B

= NPN TRANSISTOR
= PNP TRANSISTOR

LOCATION OF COMPONENTS

IC's
IC1---D4
IC2---G4
IC3---A,B3
IC4---F1,2

TR's
TR1---C3,4
TR2---C5
TR3---E5
TR4---E5
TR5---C5
TR6---B2
TR7---B2
TR10---E,F3
TR11---E5
TR12---E5
TR13---H4
TR14---G5
TR16---D2,3
TR17---D2,3
TR18---D2,3
TR19---B3
TR20---A3
TR21---F3
TR22---G2
TR25---H1
TR26---D,E1

2SC3383
2SC2878
2SC930

2SA1317
2SC2603

2SK192A

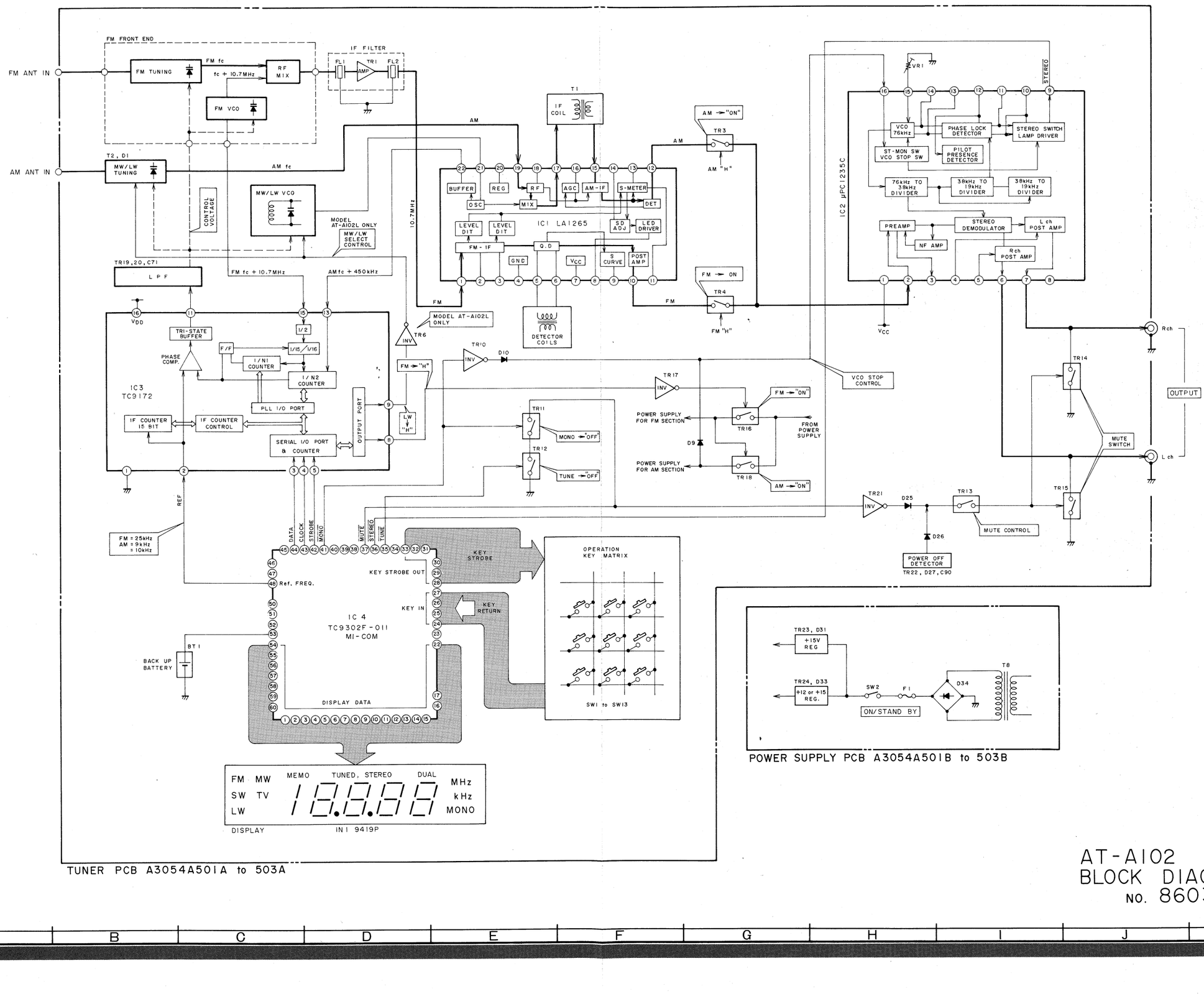
2SK246

TUNER PCB A3054A504A

WARNING: ⚠INDICATES SAFETY CRITICAL COMPONENTS FOR CONTINUED SAFETY. REPLACE SAFETY CRITICAL COMPONENTS ONLY WITH MANUFACTURER'S RECOMMENDED PARTS

AVERTISSEMENT: ⚠IL INDIQUE LES COMPOSANTS CRITIQUES DE SÉCURITÉ. POUR MAINTENIR LE DEGRÉ DE SÉCURITÉ DE L'APPAREIL, NE REMPLACER QUE DES PIÈCES RECOMMANDEES PAR LE FABRICANT

AT-A102



AT-A102
BLOCK DIAGRAM
No. 860302A